

July 1, 1981

Dear Manufacturer:

SUBJECT: Relief for Manufacturers--Certification Program Policy Changes

In the past several months, EPA has been reviewing its motor vehicle emissions compliance procedures with the long-term aim of developing a less costly motor vehicle emission compliance program that meets the air quality goals set by Congress. This long-term goal will require some time to develop and implement. We believe that there are more immediate steps that we can take to reduce the cost of the current compliance program while the long-term program is being developed. Therefore, we are reviewing the current policies and regulations to find ways to ease the compliance burdens on the industry without significantly increasing noncompliance risks over the current program. This letter provides our initial policy revisions for cost reductions. Regulatory relief should follow later this year and we will continue to review our policies to provide further change if warranted.

Enclosed is a descriptive list of certification program policy changes that are effective as of this date. We have informally discussed these changes with many manufacturers, primarily through the Motor Vehicle Manufacturers Association. We anticipate that these changes will result in significant cost-savings for manufacturers while the short- and long-term regulatory changes are being developed. This letter will serve as the formal notice of these changes. We plan to amend the advisory circulars and/or guidelines that are affected by these changes as soon as time permits.

If you have any questions regarding these policy changes, please contact your EPA certification team.

Sincerely yours,

Michael P. Walsh
Deputy Assistant Administrator
for Mobile Source Air Pollution Control

Enclosure

Certification Program Policy Changes
July 1, 1981

1. Carryover/Carry-Across -OMSAPC Advisory Circular (A/C) No. 17E sets forth EPA's policy regarding the general criteria for the carryover and carry-across of certification data for light-duty vehicles and light-duty trucks. EPA has reviewed the durability-data vehicle carryover criteria and has determined that changes can be made in two of the criteria listed in paragraph VI.A.3 of A/C No. 17E. The changes are as follows:

a. Test Weight -In accordance with paragraph VI.A.3.d of A/C No. 17E, carryover is not routinely allowed if the current model year durability selection has a heavier test weight than the tested durability-data vehicle unless the weight difference is due to changes in the product sales mix, or due to the change in regulations for test weights (1980 model year only).

Higher engine loads caused by higher vehicle weight could result in a higher deterioration factor. However, a reexamination of factors affecting emission control deterioration now leads us to believe that small increases in vehicle weight will not have a measureable affect on the deterioration factor. Moreover, the durability-data vehicle selection is based on the sales-weighted average equivalent test weight for the engine family. We now believe that small variations from that selection for the purpose of increasing carryover or carry-across flexibility will not unduly harm the credibility or accuracy of the deterioration factor but will decrease certification costs due to the increased carryover and carry-across of data. Therefore, EPA is incorporating a maximum allowable increase of 500 pounds in the equivalent test weight of durability-data vehicles in paragraph VI.A.3.d of A/C No. 17E. This change will reduce the number of new durability vehicles required each year with its resultant cost savings. The manufacturer should substitute the following paragraph VI.A.3.d of A/C No. 17E:

(d) "Was tested at the same, heavier, or no more than 500 pounds lighter equivalent test weight as the durability-data vehicle designated for 1980."

b. Road-Load Horsepower -In accordance with paragraph VI.A.3.f of A/C No. 17E, carryover is not allowed unless the prior model year durability-data vehicle had a road-load horsepower value of at least 75 percent of the road-load horsepower designated for the subsequent model year durability-data vehicle. However, allowing the carryover of durability-data vehicles regardless of the difference in road-load horsepower, if any, would reduce the number of new durability-data vehicles the manufacturers would have to build

each year.

EPA has reviewed the requirements of paragraph VI.A.3.f of A/C No. 17E. Considering the potential cost savings to the industry, we do not find sufficient technical justification for retaining durability-data carryover road-load horsepower constraints. Therefore, EPA is deleting paragraph VI.A.3.f of A/C No. 17E.

2. Dynamometer Mileage Accumulation -A/C No. 35A sets forth the criteria for approval of the use of an outdoor dynamometer for mileage accumulation. The Agency and the industry have operated within the framework of this circular since its publication in April of 1979. During this time many dynamometers have been approved and the industry has accumulated a great deal of experience in road-to-dynamometer correlation. Based on this experience and the demonstrated ability of the industry to successfully address the present road-to-dynamometer correlation criteria, the following changes are being made to A/C No. 35A to increase the allowable flexibility in mileage accumulation dynamometer acceptance:

a. Paragraph V.B of A/C No. 35A indicates that manufacturers are to submit the data generated in support of their dynamometer qualification process to EPA. The routine submittal of this information is no longer necessary as long as the information is maintained by the manufacturer and made available to EPA upon request.

b. Paragraph V.B.1.(e) indicates that chassis underside temperatures should be monitored at three locations at or near the centerline of the vehicle in the front, center, and back. The requirement for recording of the front temperature is now deleted since the measurement has been found not to be necessary to establish road-to-dynamometer correlation. Temperature need only be monitored on the chassis underside at two locations at or near the longitudinal centerline of the vehicle in the center and back.

c. Paragraph V.B.2 indicates that manifold vacuum or wheel (or dynamometer) torque should be monitored. These data requirements are now being expanded to increase the manufacturer's flexibility in measuring engine load. These data requirements may now be satisfied by the measurement of manifold vacuum, wheel (or dynamometer) torque, or other indications of engine load.

d. Paragraph V.C of A/C No. 35A limits the use of chassis dynamometer to ambient temperatures within 30 F of the ambient temperatures recorded with the demonstration vehicle. Under paragraph VI of A/C No. 35A, manufacturers have been able to apply for a waiver of the ambient temperature constraints of paragraph V.C. Historically, when manufacturers have demonstrated temperature correlation at one temperature they can demonstrate temperature correlation

for the range of ambient temperatures normally encountered. Therefore, the 30 F temperature limitation contained in paragraph V.C of A/C No. 35A is no longer necessary. The provisions of paragraphs V.C and VI of A/C No. 35A are hereby no longer applicable.

e. Paragraph VII.B contains the present acceptable temperature correlation criteria. These criteria are being expanded to allow greater flexibility to the industry in achieving acceptable temperature correlation. The temperature correlation will now be considered acceptable if the temperature versus time curves agree within 10 F for temperatures up to 100 F and within 10 percent for temperatures above 100 F.

f. Paragraph IX.B.2 indicates that EPA generally requires overt indications of malfunction (used to signal the need for unscheduled maintenance) to be verified by on-the-road evaluation. An on-the-road evaluation is no longer generally required if the overt indication of malfunction can be verified on the dynamometer. In cases where the overt indication cannot be verified on the dynamometer, or when specified by EPA, an on-the-road evaluation will be necessary.

g. Paragraph IX.C indicates that each time a vehicle is moved from a mileage accumulation dynamometer to the track or vice versa this change must be recorded on the vehicle's log sheet. This is no longer necessary as long as the information is recorded in the respective vehicle mileage accumulation record and is made available to EPA upon request.

h. Paragraph X.A.2 indicates that the ambient temperature should be recorded at hourly intervals. This data requirement is no longer necessary and is hereby deleted.

i. Paragraph X.A.3 indicates that the engine load indicating parameter should be monitored on an hourly basis. This data requirement has been expanded to allow the engine load indicating parameter to be monitored at a two hour interval.

3. Expanded Use of Back-to-Back Testing -EPA has examined the issue of utilizing back-to-back testing in lieu of testing new 4,000-mile emission-data vehicles for demonstrating the impact on emissions when only calibration changes are involved. Back-to-back testing is performed on a vehicle which has a stabilized engine/emission control system. The use of back-to-back testing in place of 4,000-mile emission-data vehicles will reduce the number of emission-data vehicles required of manufacturers in the certification program, thereby reducing the manufacturers' costs. Based on our cumulative experience in testing calibration change effects, we now believe that with today's engine-system combination designs, 4,000 miles of mileage accumulation is unnecessary in order to adequately evaluate the emission performance of vehicles differing only by calibration. Therefore, EPA has decided to allow

back-to-back testing in three areas where new emission-data vehicles were formerly required. Provided that engine family-exhaust emission control system combination, or the evaporative family-evaporative emission control system combination is unchanged and the combustion chamber has not been accessed, back-to-back testing can be performed in the situations described below:

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a. Running Changes -40 CFR 86.079-33(h) gives the Administrator discretion in the testing required to support running changes. EPA's policy on running changes that involve major engine code changes is stated in the abbreviated certification guidelines for running change testing. These guidelines state in paragraph Testing B.3.b:

"Changes which would involve major engine code changes or access to the combustion chamber, except as specifically permitted by regulation, and, those which are likely to affect the generation of combustion chamber deposits, should be demonstrated on one or more new emission-data vehicles. A major code change would be where a new calibration affecting the operating characteristics of a primary emission control device (e.g., carburetor, fuel injection, air injection, EGR, etc.) extends beyond the limits of and does not significantly overlap the mean of the calibration covered under the original certification. In cases where a new calibration overlaps the original calibration, the test vehicle shall incorporate a calibration near the production tolerance limit of the new specification which is outside of the old limits and furthest from the old specification.'-

EPA will no longer require a new emission-data vehicle for running changes involving major engine code changes within an engine family-emission control system combination or an evaporative family-emission control system combination. This change will reduce the number of new 4,000-mile emission-data vehicles the manufacturer must run each year and therefore, reduce the manufacturer's certification program costs. Since the emission level changes caused by engine code changes are not significantly affected by 4,000 miles of service accumulation, this change will not likely adversely affect air quality.

b. Emission-data vehicle failures -40 CFR 86.081-30(b)(4) specifies the alternatives with which to proceed when an emission-data vehicle fails any applicable standard when tested for emission compliance. Under this paragraph, EPA may, at its option, require a new 4,000-mile emission-data vehicle to replace the failed vehicle. Paragraph (b)(4)(iii) states in part "...The Administrator may require, if applicable, that the failed vehicle be modified to the new engine code (or evaporative emission code, as applicable) and demonstrate by testing that it meets applicable standards for which it was originally tested. In addition, the Administrator may select, in accordance with the vehicle selection criteria given in §86.081-24(b), a new

emission-data vehicle or vehicles...." Paragraph (b)(4) of that section contains a similar requirement for corrected components or system malfunctions. EPA has historically exercised the option to require a new emission-data vehicle along with demonstrating the fix on the failed emission-data vehicle to provide the extra assurance that the new calibration (with any associated new components) meets the standards after operating 4,000 miles.

As stated earlier, we now believe that the different emission levels between calibrations are not significantly affected by 4,000 miles of operation for today's vehicles. Therefore, in an effort to cut manufacturers' costs in certification testing, we will no longer require manufacturers to test new

4,000-mile emission-data vehicles in addition to demonstrating the fix on the failed vehicle. While saving the manufacturer the cost of constructing and testing a new emission-data vehicle, we do not expect this new policy will impose a significant risk to air quality.

If the emission results for a passing vehicle are in close proximity to the emission standards, it is possible that the vehicle may pass as the result of test-to-test variability. Test-to-test variability is currently approximately 3 to 5 percent of the test value. To guard against the possibility that an allegedly fixed vehicle would pass only as a result of repeated testing, EPA will closely monitor manufacturer's implementation of this revised policy. If this revised policy or the use of back-to-back data are abused to take advantage of test-to-test variability we will modify this policy as appropriate.

c. New Model Year Emission-Data Vehicles -The EPA policy contained in A/C No. 17E, paragraph VI.A.5 does not routinely allow carryover of data from back-to-back tests for a new model year configuration. However, allowing the carryover of running change back-to-back testing would reduce the number of new emission-data vehicles the manufacturers would have to build each year. EPA now recognizes that back-to-back testing can provide as accurate a measurement of emission performance as a new emission-data vehicle. Therefore, EPA will now accept carryover of data from back-to-back tests. Paragraph VI.A.5.b of A/C No. 17E is changed to read:

(b) "Was a running change vehicle."

This change will reduce the manufacturers' certification program costs because of the reduced number of new emission-data vehicles. Since back-to-back testing provides an accurate measurement of emission performance, this change is not expected to affect air quality.

d. Heavy-duty engine applicability -Although A/C No. 17E does not specifically apply to heavy-duty engines, EPA uses many of the same carryover policies for heavy-duty engines. In this case, EPA will also allow carryover

of back-to-back data for heavy-duty engines except when the running change involves a diesel heavy-duty engine which has had an increase in fuel feed per stroke at rated speed (because this change may result in a new durability engine requirement). Paragraph 3.b of this document is not applicable when a gasoline-fueled or diesel emission-data engine fails to meet emission standards because of the regulatory requirement for a new emission-data engine in this case.

In allowing greater flexibility in the use of back-to-back testing, there is a possibility in some cases that emissions test data could become biased, lower than the true values due to the repeated use of particular test vehicles. If such biasing of test data becomes apparent after the implementation of the above policy changes, we may reevaluate our policies in this area.

4. Emission-Data Vehicle Confirmatory Coastdowns -Under the provisions of 40 CFR 86.129(b)(2) and (3) a vehicle manufacturer may determine a test vehicle's road-load horsepower by an alternative procedure (approved by EPA in advance) in lieu of using the road-load horsepower determined by the frontal area calculation method. A/C No. 55B sets forth EPA's policy on the determination and use of alternative dynamometer power absorption (DPA) values. Paragraph VII.E of A/C No. 55B sets forth policy concerning the confirmation of the manufacturer's alternative DPA values. The manufacturer whose DPA value is to be confirmed has the option of either electing to use a DPA value determined from vehicle frontal area or supplying a vehicle for EPA to use to confirm the alternative DPA value. According to A/C No. 55B, EPA confirmation of the alternative DPA is to be performed at an independent facility, not the manufacturer's Facility.

EPA has considered allowing the manufacturer to perform the confirmation at its facility, thereby reducing such manufacturer's costs as shipping vehicles and personnel travel to observe the confirmation coastdowns at an independent facility. The manufacturers now have the facilities and equipment, and have developed the necessary expertise to routinely generate alternative DPA's which are successfully confirmed at an independent facility. Therefore, the cost incurred and the time lost via routine confirmatory testing at independent facility is generally now unnecessary.

If EPA elects to perform confirmatory testing according to the general guidelines established in A/C No. 55B, EPA will generally conduct confirmatory testing at the manufacturer's facility using the manufacturer's equipment and personnel unless EPA has reason to believe that such testing results in unrepresentative data. In this case, EPA may use its own equipment and personnel or require testing at an independent facility. EPA plans to independently conduct coastdown tests on limited numbers of production vehicles leased or borrowed from commercial or in-use sources. Such data will not serve as official confirmatory test data but will be used to guide EPA in judging the representativeness of manufacturers' data and hence, the need for confirmation of official data at an independent facility.

If the manufacturer chooses to continue testing at independent facilities, EPA will continue to accept data from independent facilities which demonstrate the ability to conduct technically valid and repeatable test results for determining alternative DPA's.

5. Frontal Area DPA Submittals -A/C No. 55B, paragraph VI.B sets forth EPA's policy that the manufacturer must calculate frontal area DPA values and submit those values for all vehicles, including those vehicles which will be tested using a DPA value determined by an alternative procedure. The reason for requiring both DPA values to be submitted was to enable EPA to judge the reasonableness of the alternative DPA value by comparing it to the frontal area DPA value and to have a DPA available for use in testing if the alternative DPA value could not be confirmed.

The majority of light-duty vehicle and light-duty truck manufacturers are currently utilizing alternative (coastdown generated) DPA values. Because these alternative DPA values are usually significantly lower than the frontal area values, EPA no longer routinely uses the frontal area values to identify questionable alternative DPA values. Frontal area DPA calculations represent unnecessary additional work and cost for the manufacturers. In addition, the manufacturers have developed the expertise in generating the alternative DPA's so that EPA routinely confirms the alternative DPA and does not end up using the DPA based on frontal area calculations. Therefore, with this notice, manufacturers are not required to submit frontal area DPA's when the vehicle will be tested using an alternative DPA determined by an EPA-approved procedure.

6. Abbreviated Certification Review (ACR) Questionnaires -ACR questionnaires were initially introduced to the manufacturers by means of EPA letters to the manufacturers dated December 15, 1978 and March 19, 1979. The letters pointed out to the manufacturers that the questionnaires were to aid EPA in expeditiously reviewing the manufacturer's application for certification. However, the manufacturers were not required to fill out the questionnaires. At first the manufacturers routinely submitted these questionnaires, however, the submission rate has declined to such an extent that not enough information is submitted to be useful. In addition, one of the objectives of utilizing the questionnaires was to familiarize the manufacturers with the requirements of the abbreviated certification review procedures. Manufacturers should now be sufficiently familiar with these procedures. Therefore, EPA no longer will request manufacturers to complete or submit the ACR questionnaires.

7. "All" Running Changes and Running Changes Amendments -In a June 17, 1980 letter to manufacturers, EPA established a policy that restricted a running change to only designated engine codes within a single engine family. If, however, the manufacturer's entire product line was affected by a particular

running change then the running change could be tendered as an "all" type running change applicable to the manufacturer's entire product line. Also, in the above mentioned letter, a policy was established that prevented the amending of previously submitted running changes. To modify a running change according to this policy, the manufacturers had to withdraw, update, renumber, and then resubmit the running change. This policy was instituted when EPA began using a form facilitating computer input and thereby reducing the documentation burden on manufacturers. The industry has recently expressed a desire to have the use of "all" type of running change expanded to encompass applicability at the engine family and vehicle model level. In addition, the industry has also indicated a desire to have the running change amendment procedure reinstated.

EPA has recently instituted a computerized running change pilot program that contains provisions for both "all" type running changes and for amendments. Participation in this pilot program has been limited to two manufacturers to most quickly and efficiently evaluate the potential changes in procedures.

This pilot program allows two levels of "all" type running changes. The first level is at the vehicle class level to include all engine families within a vehicle class (LDV, LDDV, LDT, LDDT). The second level is the engine family and includes all engine codes within an engine family. The pilot program also contains a mechanism for amending submitted running changes by submitting updated information as necessary. As soon as the procedures have been refined (if necessary) and proven through use in the pilot program, they will be released industry wide. It is expected that this will occur in time to be generally applicable for the 1982 model year.

These policy changes to running change documentation procedures are administrative in nature and EPA feels that with the implementation of the new (pilot) procedure, the industry can be allowed the extended flexibility of "all" type running changes and amendments to running changes without significantly degrading the administrative benefits gained through the adoption of the previous policy. The manufacturers will benefit from the change by a reduction in the number of running change forms they submit to EPA.

8. Durability-and Emission-data Vehicles and Engines -Heavy-duty diesel engine manufacturers often accumulate hours on durability-data engines and emission-data engines utilizing the same calibrations. Since both engines are calibrated the same, it is technically possible for the manufacturers to utilize the same engine to fulfill both durability-and emission-data engine requirements. While not a common practice, the same situation could arise in the heavy-duty gasoline and the light-duty certification programs.

EPA prefers the use of production calibrations for durability-data vehicles and engines when possible since this would tend to improve the representativeness of the deterioration factor. A review of the existing regulations '40 CFR 86.081-24) indicates that utilizing one vehicle or engine

to satisfy both requirements is not prohibited. Therefore, manufacturers have the option of utilizing the same vehicle or engine to fulfill both data requirements, provided both vehicles or engines would be calibrated the same and meet the vehicle or engine selection criteria applicable to both durability-and emission-data vehicles or engines.

For light-duty vehicles and light-duty trucks, the emission-data test must be conducted at the 4,000-mile point in addition to the durability-data test conducted at the 5,000-mile point. 40 CFR 86.081-26(a)(4) does not allow us to substitute the 4,000-mile test for the 5,000-mile test except under the alternative durability program. The 4,000-mile test data will not be included in the deterioration factor calculation. For heavy-duty engines the 125-hour test results will be used to satisfy both durability-and emission-data engine test requirements.

This policy may reduce the number of vehicles and engines the manufacturers have to build and run for the purpose of obtaining certification thereby reducing the manufacturers' certification program costs.